
BY THE U.S. GENERAL ACCOUNTING OFFICE
**Report To The Director,
Office Of Management And Budget**

The Government Should Buy More Fuel-Efficient Trucks And Truck Tractors

Many fuel-efficient components are available from commercial sources which, when installed on trucks and truck tractors, can increase fuel efficiency by 20 percent. While Federal agencies are presently buying some of these components, they can expand their efforts and profit accordingly.

This report identifies factors impeding the purchase of energy-efficient components in Government trucks and truck tractors and discusses several ways to improve Government procurement of these vehicles.



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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

ENERGY AND MINERALS
DIVISION

B-179397

The Honorable James T. McIntyre, Jr.
Director, Office of Management and Budget

Dear Mr. McIntyre:

During the past year, we have issued several reports relative to Federal efforts to conserve energy. This report is a continuation of our review of how Federal agencies have attempted to conserve energy. We surveyed the extent to which the Government was buying fuel-efficient commercial truck tractors because some of our previous work indicated that the Government's use of fuel-efficient components and devices was lower than experienced by industry. The results of our survey have reinforced our earlier belief, namely, that greater effort is needed in buying fuel-efficient trucks and truck tractors. This report discusses how we believe the procurement process can be strengthened to maximize fuel conservation in the purchase of commercial medium and heavy duty trucks and truck tractors.

This report contains recommendations to you on page 16. As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Operations not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

This report is also being sent to the Secretaries of Energy and Defense and the Administrator, General Services Administration; the four committees mentioned above; and the chairmen of energy-related congressional committees.

We would appreciate being advised of the actions taken on the matters discussed in this report.

GSA AGC 00017
AGC 00020
AGC 00912
AGC 00027

Sincerely yours,

McCullough

for J. Dexter Peach
Director



D I G E S T

The Federal Government must reduce fuel use in its medium and heavy duty trucks and truck tractors. Although some savings have been made since 1977, GAO estimates that, if its domestic fleet of over 30,000 vehicles were able to achieve an additional 20-percent fuel savings, the Government could annually save over 220,000 barrels of oil valued at \$4.2 million.

GAO identified 12 fuel-efficient components and determined the extent to which they were used in Government purchased truck tractors. Except for diesel engines, the use of these components is not widespread. Federal agencies could expand their purchases of these components. However, GAO found several factors which impede the Federal Government's use of fuel-efficient components:

- The current vehicle specifications effectively preclude extensive use of fuel-efficient components and encourage use of non-fuel-efficient components. (See page 8.)
- Procurement practices of the General Services Administration (GSA) and the United States Army Tank-Automotive Materiel Readiness Command need to be improved as these agencies have not required the use of fuel-efficient components, where appropriate. (See p. 12.)
- Procurement agencies are not fully aware of the benefits that could be obtained by using fuel-efficient components. (See p. 13.)

GAO believes that there has not been sufficient emphasis on the procurement of fuel efficient components by GSA and the Army Tank-Automotive Materiel Readiness Command in the past. Further, there is not much indication that these agencies will work toward issuing vehicle specifications

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which mandate the use of fuel-efficient components and adopt procurement practices which will restrict the buying of non-fuel-efficient components.

Because (1) the Office of Management and Budget (OMB) is responsible for developing energy conservation and energy efficiency standards to govern the procurement policies and decisions of the Federal Government, and (2) very recently the President called on OMB to assist in expediting the implementation of previous Executive Orders on conservation in the Federal establishment, GAO makes the following recommendations.

RECOMMENDATIONS

GAO recommends that the Director, OMB, through the Office of Federal Procurement Policy issue guidelines advising the Department of Defense and GSA to:

- Issue vehicle specifications which mandate the use of fuel-efficient components and adopt those procurement practices which restrict the buying of those that are not, unless the use of these components is not cost effective from the point of view of life cycle cost analysis or would not meet the vehicle performance needs of the users. In this effort, OMB should provide the procurement agencies with necessary direction to ensure that fuel-efficient vehicles are purchased.
- Actively participate in the Voluntary Truck and Bus Fuel Economy Program to obtain the maximum awareness of the benefits of using fuel-efficient components in medium and heavy duty trucks and truck tractors.

As these recommendations are implemented OMB should require the Department of Defense and the General Services Administration to submit progress reports on the agency efforts to maximize the fuel efficiency of medium and heavy duty trucks brought into the system.

AGENCY COMMENTS

GAO provided a draft of this report to GSA, the Army Tank-Automotive Materiel Readiness Command, and OMB. GSA officials said they need backing from OMB if the regulations and specifications are to be enforced so that GSA can mandate the use of fuel-efficient components and adopt those procurement practices which restrict the buying of non-fuel-efficient components. Army Tank-Automotive Materiel Readiness Command officials had no comment on this matter.

OMB officials said it was their view that neither GSA nor the Department of Defense need any authority or direction from OMB to encourage their customers to use fuel-efficient components when appropriate.

Both the Army Tank-Automotive Materiel Readiness Command and GSA indicated to GAO that they would actively participate in the Voluntary Truck and Bus Fuel Economy Program. The Tank-Automotive Materiel Readiness Command also said it would include fuel-efficiency engines, and 6- and 9-speed transmissions in the proposed governmentwide specifications for heavy duty vehicles.

Since there appear to be some differences between OMB and the procurement agencies as to the need for OMB authority, GAO believes that OMB should provide the necessary direction to resolve any questions on the use of fuel-efficient components and help provide the leadership in the Federal Government's efforts to conserve energy through its procurement process.



C o n t e n t s

| | | <u>Page</u> |
|---------|--|-------------|
| DIGEST | | i |
| CHAPTER | | |
| 1 | INTRODUCTION | 1 |
| | Scope of review | 2 |
| 2 | USE OF FUEL EFFICIENT COMPONENTS CAN SAVE ADDITIONAL ENERGY IN OPERATING COMMERCIAL TRUCKS AND TRUCK TRACTORS | 3 |
| | Availability of fuel-efficient components and their potential for fuel savings | 3 |
| | Use of fuel-efficient components on heavy trucks is not widespread | 6 |
| | Current vehicle specifications preclude extensive use of fuel- efficient components and encourage use of less effi- cient components | 8 |
| | Need for uniform practices and agency authority to ensure pro- curement of fuel-efficient vehicles | 12 |
| | Need for more involvement with the Voluntary Truck and Bus Fuel Economy Program | 13 |
| 3 | CONCLUSIONS AND RECOMMENDATIONS | 15 |
| | Agency comments | 17 |

ABBREVIATIONS

| | |
|--------|--|
| DOT | Department of Transportation |
| GAO | General Accounting Office |
| GSA | General Services Administration |
| OMB | Office of Management and Budget |
| TARCOM | United States Army Tank-Automotive Materiel Readiness Command |
| VTP | Voluntary Truck and Bus Fuel Economy Program |



CHAPTER 1

INTRODUCTION

The Federal Government in fiscal year 1977 operated about 30,000 medium and heavy duty trucks and truck tractors ^{1/}--the largest domestic fleet of these vehicles in the United States. In contrast, the largest commercial carrier in the United States operates about 24,800 medium and heavy duty trucks and truck tractors. The Government vehicles are used mainly by the U.S. Postal Service and the Departments of Agriculture, Defense, Energy, and the Interior.

While a number of Federal agencies use these vehicles, the procurement responsibility is divided between the General Services Administration (GSA) and the United States Army Tank-Automotive Materiel Readiness Command (TARCOM). GSA purchases trucks and truck tractors for civilian agencies like the U.S. Postal Service and the Departments of Agriculture, Energy, and the Interior. TARCOM buys the vehicles for the Army and other defense agencies. During the period January 1977 through March 1979, GSA purchased 501 heavy duty vehicles and TARCOM purchased 5,191. The combined cost of the 5,692 vehicles was about \$250 million.

Fuel-efficient components and devices for medium and heavy duty trucks and truck tractors have been available on the commercial market since 1973. These components can be classified into various groups--engines and engine components, aerodynamic devices, radial tires, transmissions, axles, and weight reduction components. A brief description of these fuel-efficient components follows.

The use of fuel-efficient diesel engines, road-speed governors, and reduced capability engines (derated engines) save fuel by limiting the maximum speed at which the engine and vehicle can operate. Standard diesel engines use less fuel than gasoline engines. Installing variable fan drives on engines saves fuel by allowing the engine fan to idle when it is not needed to cool the engine.

^{1/}Medium duty--vehicles with a gross vehicle weight ranging 10,000 to 26,000 pounds.

Heavy duty--vehicles with a gross vehicle weight in excess of 26,000 pounds.

Fuel is also saved by aerodynamic devices and radial tires because engine horsepower can be reduced. Aerodynamic devices cut the power needed to move the truck by directing the air flow over and around it. This reduces the drag that occurs by driving into the wind. Radial tires are more fuel efficient than bias belted tires in that they reduce friction as they roll and flex on the highway.

When used with fuel-efficient engines 6- speed and 9-speed transmissions are fuel-efficient in that they result in a constant and smooth operation of the engine. Use of tag axles 1/ and single reduction rather than double reduction rear axles save fuel because they use less horsepower to operate. Finally, weight reduction components such as aluminum, fiberglass, and plastic when used to replace steel are considered fuel efficient because they reduce the overall weight of the trucks and tractor and trailer combinations allowing more cargo weight to be carried.

SCOPE OF REVIEW

We evaluated Federal Government procurement of commercial heavy duty truck tractors to determine the extent to which the Government is buying fuel-efficient tractors, because prior audit work indicated minimal use of fuel-efficient components. This report is a continuation of our reviews of how the Federal agencies have attempted to conserve energy. We conducted our work at GSA and TARCUM where we reviewed both medium and heavy duty trucks' and truck tractors' specifications, contracts for heavy duty tractors, and other correspondence relative to the procurement of medium and heavy duty vehicles. We also interviewed personnel to determine their role in encouraging their customers to buy fuel-efficient vehicles.

1/Most heavy duty truck tractors are equipped with two axles (one behind each other) to accommodate the weight of the loaded trailer. One or both of these axles may be used to drive the tractor. When only one axle is used to drive the tractor the undriven axle is a tag axle.

CHAPTER 2

USE OF FUEL-EFFICIENT COMPONENTS CAN SAVE ADDITIONAL ENERGY IN OPERATING COMMERCIAL TRUCKS AND TRUCK TRACTORS

Many fuel-efficient components for medium and heavy duty trucks and truck tractors are available in commercial markets, but the Government is only procuring a limited number of these components because

- current vehicle specifications effectively preclude extensive use of fuel-efficient components and encourage use of non-fuel-efficient components;
- procurement practices of GSA and TARCOM need to be improved and these agencies have not required the use of fuel-efficient components, when appropriate; and
- procurement agencies are not fully aware of the benefits that could be obtained by using fuel-efficient components.

While all available fuel-efficient components cannot be used on all vehicles, if the fuel efficiency of each truck and truck tractor could be improved by 20 percent through the use of these components, the Government could annually save 220,000 barrels of oil costing \$4.2 million.

AVAILABILITY OF FUEL- EFFICIENT COMPONENTS AND THEIR POTENTIAL FOR FUEL SAVINGS

Many components and devices are available from commercial sources which, when installed on medium and heavy duty trucks and tractors, can save significant amounts of fuel. Since 1973 the following fuel-efficient components and devices have been available on the commercial market:

Engines and engine components
 Standard diesel engines
 Fuel-efficient diesel engines
 Reduced speed engines (derated)
 Variable fan drives
 Road speed governors

Transmissions
 6-speed transmissions
 9-speed transmissions

Aerodynamic devices
 Wind deflectors

Axles
 Single reduction rear axle
 Tag axles

Other components
 Weight reduction components
 Radial tires

The table below, based on vehicle manufacturers' reports to the Department of Transportation (DOT), summarizes the extent to which selected components were included on new vehicles sold to commercial and Government customers during the period January 1, 1977, through March 31, 1979. 1/

| <u>Component/device</u> | <u>Percent of components on vehicles</u> | |
|-------------------------------|--|-------------------|
| | <u>Medium duty</u> | <u>Heavy duty</u> |
| Standard diesel engines | 7.3 | 37.3 |
| Fuel-efficient diesel engines | - | 44.0 |
| Total diesel engines | 7.3 | 81.3 |
| Radial tires | 4.5 | 23.5 |
| Variable fan drives | 42.4 | 58.8 |
| Aerodynamic devices | - | 9.5 |

1/Total heavy duty sales during this period were 517,300. The Federal Government total of 5,692 vehicles represents 1.1 percent of the total sales.

DOT reported in August 1978 that use of selected fuel-efficient components could result in fuel savings ranging from 42 to 2 percent as shown below.

| <u>Component/device</u> | <u>Percentage of fuel savings</u> | |
|---|-----------------------------------|-------------------|
| | <u>Medium duty</u> | <u>Heavy duty</u> |
| Fuel efficient diesel vs. gasoline engine | - | 42 |
| Standard diesel vs. gasoline engine | 35 | 35 |
| Fuel efficient diesel vs. standard diesel | - | 7 |
| Radial tires | 4 | 6 |
| Variable fan drives | 2 | 6 |
| Aerodynamic devices | 2 | 6 |

Based on the Federal Motor Vehicle Fleet Report in fiscal year 1977, GSA reported that the large Government fleets used the equivalent of 1.1 million barrels of fuel to operate medium and heavy duty trucks and truck tractors. We estimate that, if the Government conserved 20 percent ^{1/} of its fuel by using more fuel-efficient components, about 220,000 barrels of oil could be saved annually. At an estimated cost of \$19 a barrel, this represents a potential savings to the Federal Government of \$4.2 million in reduced imports, dependence on foreign oil, and foreign payments deficit. Initially, the savings will be smaller, until the current fleet of trucks is replaced with trucks equipped with fuel-efficient components.

Potential for additional fuel savings exists for both medium and heavy duty trucks, especially the former. By using standard diesel engines instead of gasoline engines on medium trucks an average fuel savings of 35 percent can be obtained. Other fuel-efficient components that should be considered are variable fan drives, radial tires, and weight reduction components. Together these other components offer at least an additional 6-percent savings. The greatest potential for fuel savings on the heavy duty truck tractors centers around the use of fuel-efficient diesel engines, radial tires, tag axles, variable fan drives, single reduction rear axles, low-speed transmissions, and aerodynamic

^{1/}The 20-percent savings represent a composite savings that could be achieved when ordering new medium and heavy duty trucks. Because each truck is unique, the potential savings per vehicle could vary between 42 and 2 percent.

devices. By using only four of these components or devices, the Government could achieve an average fuel savings of 25 percent.

As demonstrated above, the use of fuel-efficient components on medium and heavy duty trucks can save extensive amounts of fuel. When Government agencies replace their commercial trucks and truck tractors, fuel-efficient components should be used unless the use of these components is not cost effective from the point of view of life cycle cost analysis basis or would not meet the vehicle performance needs of the users. Currently, neither GSA nor TARCOM performs life cycle cost analyses prior to ordering vehicles for their respective customers. Furthermore, neither agency knows to what extent their customers perform life cycle cost analysis prior to placing vehicle orders.

USE OF FUEL-EFFICIENT COMPONENTS ON HEAVY TRUCKS IS NOT WIDESPREAD

Although many fuel-efficient components are available, the Government, with few exceptions, is not making widespread use of such components on heavy trucks. We identified 12 fuel-efficient components that could be used in heavy duty truck tractors. Except for diesel engines, widespread use is not being made of fuel-efficient components.

GSA and TARCOM purchased 5,692 heavy duty tractors from January 1977 to April 1979. These purchases can be divided into four customer categories--Army M915 series commercial type tractors (77 percent), GSA Postal Service tractors (7 percent), other TARCOM tractors (14 percent), and other GSA purchases (2 percent).

M915 series trucks and truck tractors

The use of fuel-efficient components varies according to the customer. For example, in July 1977 the Army awarded a contract for heavy M915 series trucks and truck tractors which were equipped with standard diesel engines, single reduction rear axles, and variable fan drives. Army officials said that other fuel-efficient components such as fuel-efficient engines, radial tires, and wind deflectors were considered when developing the M915 series specifications. Because the Army wanted a series of trucks that had common components and the missions of each truck and tractor type were different, they did not include these components in their vehicle specifications.

However, the Army never tested fuel-efficient engines to determine whether they could meet mission requirements. Currently, TARCOM is arranging for tests of aerodynamic devices and radial tires to determine if they could be adapted to M915 long haul tractors. The use of wind deflectors may be limited because of the few container type trailers used by the Army units to which these vehicles will be assigned. Army officials said that the use of the wind deflectors and radial tires would be at the option of the user units.

TARCOM's other tractor purchases

Other tractor purchases were fully equipped with radial tires but none were equipped with any other fuel-efficient components such as fuel-efficient diesel engines, aerodynamic devices, weight reduction components, or 6- and 9-speed transmissions.

TARCOM officials said that the general mission of the requesting customers infers on-base, low mileage, low speed use of the tractors. They believe that this mission would restrict the use of many fuel-efficient components. However, they agreed to amend the proposed Government specifications for heavy duty tractors to include as options fuel-efficient diesel engines and 6- and 9-speed transmissions.

GSA tractor buys

GSA, however, has been buying a different package of fuel-efficient components. The tractors bought for U.S. Postal Service use were only equipped with either standard diesel engines (94 percent) or fuel-efficient diesel (4 percent). The other GSA customers' tractors were equipped with standard diesel engines (72 percent), fuel-efficient diesel (16 percent), and a limited number of variable fan drives, 9 speed transmissions, and radial tires.

Comparison of Government to total industry purchases

Moreover, the use of fuel-efficient components by the Government varies greatly from what commercial customers are using. For example, like the other tractor customers, the Government bought substantial quantities of standard diesel engines for their heavy duty tractors. Nearly all of the vehicles were equipped with these engines. However, the Government's purchase of fuel-efficient diesels (less than 1 percent) was significantly less than the overall purchase

rate of 44 percent. In addition, the Government only purchased radial tires on 11 percent of its vehicles compared with 23 percent of the total heavy duty tractors being equipped with radial tires. Although 77 percent of the tractors were equipped with single reduction rear axles and variable fan drives, they were only purchased for the M915 series tractors.

CURRENT VEHICLE SPECIFICATIONS PRECLUDE
EXTENSIVE USE OF FUEL-EFFICIENT COMPONENTS AND
ENCOURAGE USE OF LESS EFFICIENT COMPONENTS

GSA and TARCOM specifications ^{1/} do not encourage extensive use of fuel-efficient components such as fuel-efficient diesel engines, derated engines, variable fan clutches, and weight reduction components. However, they do include non-fuel-efficient components such as gasoline engines, liquidified petroleum gas engines, and bias belted tires. Further, proposed joint GSA/TARCOM specifications do not contain many fuel-efficient components, but they do include non-fuel-efficient components which could be selected by the customers.

TARCOM's specifications for heavy duty tractors preclude extensive use of fuel-efficient components by including only radial tires as standard equipment. Standard and fuel-efficient diesel engines, wind deflectors, and 6- and 9-speed transmissions are available to TARCOM customers on an optional basis, which does little to promote the use of such devices. In addition, TARCOM's specifications promote the use of non-fuel-efficient components by including, as optional or standard equipment, gasoline engines, transmission speeds in excess of 9-forward, and bias tires.

TARCOM's specifications for medium duty tractors limit use of fuel-efficient components as only standard diesel engines, wind deflectors, and radial tires are offered on an optional basis. The non-fuel-efficient components offered above with the heavy duty tractors are also available for TARCOM medium duty tractor customers.

^{1/}The TARCOM specifications referred to in this report are the specifications that all other TARCOM customers (Army, Navy, Air Force, Marine Corps) use to order medium and heavy duty trucks and truck tractors. It does not include specifications for the M915 series tractors which were developed separately by TARCOM.

GSA's specifications closely parallel TARCOM's but contain more fuel-efficient components, namely 6- and 9-speed transmissions. Also, GSA's specifications omit valuable fuel-efficient components, but unlike TARCOM, customers can purchase components not offered in the specifications. In fact, GSA urges its customers to purchase fuel-efficient components whenever possible.

In response to an earlier GAO report 1/, GSA and TARCOM are in the process of preparing joint vehicle specifications for medium and heavy duty trucks and truck tractors. The report recommended that the Secretary of Defense and the Administrator, General Services Administration, take action to eliminate any duplication that exists between GSA and the Department of Defense commercial vehicle specifications. The report concluded that this action could result in eliminating additional costs associated with the development and maintenance of duplicative vehicle specifications and provide for potential savings attributable to greater volume procurements using a single specification.

The proposed joint specifications contain essentially the same items as the TARCOM specifications and exclude valuable fuel-efficient components, as do the TARCOM and GSA individual specifications.

The following tables compare the availability of fuel-efficient and non-fuel-efficient components in the various specifications.

1/"Government Specifications For Commercial Products-- Necessary or a Wasted Effort?" PSAD-77-171, Nov. 3, 1977.

Government Specifications
for Heavy Duty Tractors

| <u>Fuel-efficient components</u> | <u>GSA</u> | <u>TARCOM</u> | <u>Proposed joint specifications</u> |
|--|-------------|---------------|--------------------------------------|
| Standard diesel engines | Optional | Optional | Optional |
| Wind deflectors | Optional | Optional | Optional |
| Radial tires | Optional | Standard | Standard |
| Single reduction rear axles ^{1/} | Optional | Not offered | Not offered |
| Road-speed governors | Standard | Not offered | Not offered |
| Tag axles | Optional | Not offered | Not offered |
| Fuel-efficient diesel engines | Not offered | Optional | Optional |
| 9-speed transmission | Standard | Optional | Optional |
| 6-speed transmission | Standard | Optional | Optional |
| Derated diesel engines | Not offered | Not offered | Not offered |
| Weight reduction components | Not offered | Not offered | Not offered |
| Variable fan drives ^{2/} | Not offered | Not offered | Standard |
| <u>Non-fuel-efficient components/devices</u> | | | |
| Gasoline engines | Standard | Optional | Optional |
| Bias belted tires | Standard | Optional | Optional |
| Larger than 9-speed transmissions | Standard | Optional | Optional |

^{1/}Included by most vehicle manufacturers because it is less costly than double reduction rear axles.

^{2/}Included by most vehicle manufacturers on diesel engines to reduce noise.

Government Specifications
for Medium Duty Tractors

| <u>Fuel-efficient components</u> | <u>GSA</u> | <u>TARCOM</u> | <u>Proposed joint specifications</u> |
|--|-------------|---------------|--------------------------------------|
| Standard diesel engines | Optional | Optional | Optional |
| Wind deflectors | Optional | Optional | Optional |
| Radial tires | Optional | Optional | Standard |
| Single reduction rear axles <u>1/</u> | Optional | Not offered | Not offered |
| Road-speed governors | Standard | Not offered | Not offered |
| Tag axles | Optional | Not offered | Not offered |
| Fuel-efficient diesel engines | Not offered | Not offered | Not offered |
| 9-speed transmission | Not offered | Not offered | Not offered |
| 6-speed transmission | Not offered | Not offered | Not offered |
| Derated diesel engines | Not offered | Not offered | Not offered |
| Weight reduction components | Not offered | Not offered | Not offered |
| Variable fan drives <u>2/</u> | Not offered | Not offered | Standard |
| <u>Non-fuel-efficient components/devices</u> | | | |
| Gasoline engines | Standard | Optional | Optional |
| Bias belted tires | Standard | Optional | Optional |
| Larger than 9-speed transmissions | Optional | Standard | Standard |

1/See note 1 on page 10.

2/See note 2 on page 10.

NEED FOR UNIFORM PRACTICES
AND AGENCY AUTHORITY TO ENSURE
PROCUREMENT OF FUEL-EFFICIENT VEHICLES

The procurement practices of GSA and TARCOM need to be improved to ensure procurement of more fuel-efficient vehicles. Current procurement practices vary widely between the two agencies. As a result, the type of vehicle purchased by each agency varies significantly in fuel efficiency. Further, these agencies have not required their customers to buy fuel-efficient vehicles. This lack of action, in some instances, results in Federal agencies insisting on buying less fuel-efficient vehicles when the more fuel-efficient vehicles would meet their needs.

Government agencies' procurement
practices

The procurement practices at TARCOM and GSA differ in that GSA attempts to convince its customers to buy fuel-efficient components. TARCOM does not review their customer's requests to determine if more fuel-efficient components could be used.

TARCOM's current role consists solely of performing the procurement function as it relates to

- assuring that all contract requirements are met, i.e., timeframe, financial restraints, etc., and
- obtaining an open competitive bid.

TARCOM's engineering staff reviews customers' requests to assure compatibility among components, and the procurement staff assures compatibility between the requests and the applicable military specifications. Procurement of trucks and truck tractors is diffused among two branches at TARCOM. One branch buys the Army M915 series tractors and the other branch buys all other TARCOM vehicles. The separation of procurement responsibility is the only difference between the two branches with respect to buying medium and heavy duty trucks and truck tractors.

The procurement policy at GSA is very different than at TARCOM. In addition to performing the elementary procurement functions, GSA encourages use of fuel-efficient components. Like TARCOM, GSA also reviews the customer's request, but it examines the requests for both compatibility among components and reasonableness related to the stated performance requirements. Where a more fuel efficient component is available, GSA encourages and recommends its use to the customer. Whether the purchase description is changed to include more fuel-efficient components depends on the persuasiveness of GSA staff and the willingness of the agency to accept the change.

Procurement agencies have not enforced
use of fuel-efficient components

Neither GSA nor TARCOM has ever required its customers to accept fuel-efficient components even when performance requirements would not be significantly degraded. However, GSA has had some success in getting its customers to buy fuel-efficient components.

We identified two cases at GSA where the staff was able to change the purchase description to include more fuel-efficient components. In one case, a fuel-efficient diesel engine was substituted for a standard diesel engine, and a 9-speed transmission was substituted for the less fuel-efficient 13-speed transmission. In the other case, the GSA staff was able to substitute a standard diesel engine for the less fuel-efficient gasoline engine. On the other hand, we also identified two cases where the GSA staff was not able to change the purchase description to reduce the engine size. In both cases the GSA customers specified that the minimum top road speed exceed the 55 mph speed limit and refused to accept any changes to its proposal.

NEED FOR MORE INVOLVEMENT
WITH THE VOLUNTARY TRUCK
AND BUS FUEL ECONOMY PROGRAM

Even though GSA and TARCOM are major purchasers of trucks and truck tractors, they are not involved in the Voluntary Truck and Bus Fuel Economy Program (VTP). As a result, these agencies were not fully aware of the benefits that could be obtained by purchasing more fuel-efficient components.

VTP is a cooperative effort to conserve fuel and involves the motor carrier industry, trade associations, vehicle manufacturers and suppliers, labor organizations, the press, and Federal and State government agencies. The program conducts tests, arranges demonstrations, and collects and disseminates data on effectiveness of fuel-efficient components on medium and heavy duty trucks and truck tractors. The Departments of Energy and Transportation and the Environmental Protection Agency are the Federal sponsors of the program. Most of the vehicle and major component manufacturers and large motor carriers are members of VTP.

Why should the Government procurement agencies be involved in VTP? Their participation in VTP will enhance their awareness of the fuel efficient components that are available for use in the purchase of vehicles.

Because these agencies, particularly TARCOM, have not been involved in the program, they were not fully aware of the benefits in using fuel-efficient components. For example, when we questioned TARCOM on what fuel-efficient components had been used or considered for use in other than M915 tractors, an engineer who prepared TARCOM specifications informed us that he was not aware that fuel-efficient engines existed. Yet, in its August 1978, report on VTP fuel savings, DOT said that fuel-efficient diesel engines accounted for 719 million gallons or 49 percent of the 1.5 billion gallons of fuel saved during the 1973-77 period. During a latter discussion, other TARCOM engineers said that they were aware that fuel-efficient engines existed and had recently decided to include the engines in the TARCOM and proposed governmentwide specifications. Further, another TARCOM official in the office responsible for the M915 series tractors was not aware that VTP had fuel economy statistics for selected components that were based on common carriers' actual operations. This data can be very helpful in assisting TARCOM personnel when they assess the desirability of using fuel-efficient components on future buys for medium and heavy duty trucks and truck tractors.

Although GSA is aware of the fuel-efficient components that are commercially available, we believe that its active participation in the program will provide it with current and future data that can be used to convince its customers of the benefits in making maximum use of fuel-efficient components when purchasing trucks and truck tractors.

Both TARCOM and GSA officials said that their agencies would participate actively in the VTP program.

CHAPTER 3

CONCLUSIONS AND RECOMMENDATIONS

The Federal Government operates the largest fleet of commercial medium and heavy duty vehicles in the United States. Yet, the Federal agencies are not buying fuel-efficient truck tractors to the extent that private industry does. While all available fuel-efficient components could not be used on all vehicles, if each of 30,000 trucks and truck tractors could, over a period of time, be equipped with components to increase the fuel efficiency by 20 percent, the Government could annually save 220,000 barrels of oil or \$4.2 million in reduced imports. Initially, the savings will be smaller until the current fleet is replaced with fuel-efficient components. Federal agencies are not making optimum use of fuel-efficient components because:

- The current vehicle specifications effectively preclude extensive use of fuel-efficient components and encourage use of non-fuel-efficient components. There is no uniform system to ensure that fuel-efficient devices are used consistently. Decentralized purchases both at TARCOM and GSA have resulted in numerous specifications which vary with respect to fuel efficiency measures.
- The different procurement practices by GSA and TARCOM exclude many fuel-efficient components. GSA reviews each purchase and urges the use of fuel-efficient components wherever possible, while TARCOM does not. This tends to restrict the types of components used in truck tractors and develops two fleets of vehicles--one more fuel-efficient than the other. This is further complicated by the fact that neither agency has required the use of fuel-efficient components, which resulted in customers buying non-fuel-efficient vehicles.
- The lack of active participation in VTP has precluded these agencies from being fully aware of the benefits that could be obtained by extensively equipping trucks and truck tractors with fuel-efficient components.

We believe that there has not been sufficient emphasis on the procurement of fuel-efficient components by GSA and TARCOM in the past. Further, we do not see much indication

that these agencies will work toward issuing vehicle specifications which mandate the use of fuel-efficient components and adopt procurement practices which will restrict the buying of non-fuel-efficient components.

Section 381 (a)(1) of the Energy Policy and Conservation Act (EPCA), (Public Law 94-163, December 22, 1975) requires the President to develop mandatory standards with respect to energy conservation and energy efficiency to govern the procurement policies and decisions of the Federal Government and all Federal agencies and to take such steps as are necessary to cause such standards to be implemented. (The President, by Executive Orders 11912 and 12003, delegated the responsibility of carrying out the EPCA requirements to the Office of Federal Procurement Policy, which is under the purview of the Office of Management and Budget (OMB)). As recently as January 21, 1980, the President called on the Director, OMB to assist in expediting the implementation of his previous Executive Orders concerning conservation in the operations of the Federal establishment, and pointed out that the Federal Government must move forward more vigorously to conserve energy and set an example for others in the conduct of its own operations.

Accordingly, we recommend that the Director, OMB through the Office of Federal Procurement Policy issue guidelines advising the Department of Defense and GSA to:

- Issue vehicle specifications which mandate the use of fuel-efficient components and adopt those procurement practices which restrict the buying of non-fuel-efficient components, unless the use of these components is not cost effective from the point of view of life cycle cost analysis or would not meet the vehicle performance needs of the users. In this effort, the Office of Management and Budget should provide the procurement agencies with necessary direction to ensure that fuel-efficient vehicles are purchased.

- Actively participate in the Voluntary Truck and Bus Fuel Economy Program to obtain the maximum awareness of the benefits of using fuel-efficient components in medium and heavy duty trucks and truck tractors.

As these recommendations are implemented, OMB should require the Department of Defense and GSA to submit progress reports of the individual agency efforts to maximize the fuel efficiency of medium and heavy duty trucks brought into the system.

AGENCY COMMENTS

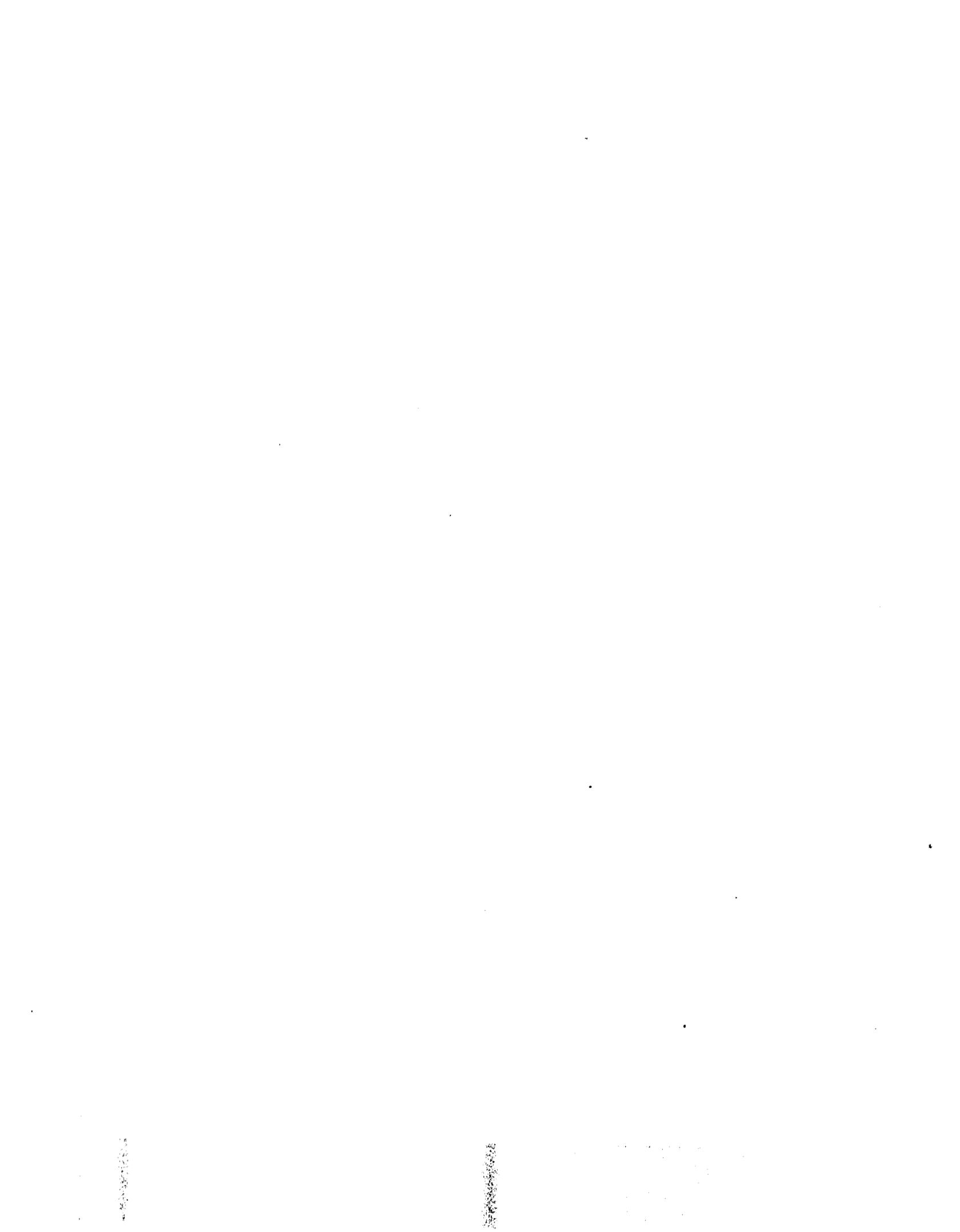
We provided a draft of this report to GSA, TARCOM, and OMB. GSA officials said they need backing from OMB if the regulations and specifications are to be enforced so that GSA can mandate the use of fuel-efficient components and adopt those procurement practices which restrict the buying of non-fuel-efficient components. TARCOM officials had no comment on this matter.

OMB officials said it was their view that neither GSA nor the Department of Defense need any authority or direction from OMB to encourage their customers to use fuel efficient components when appropriate.

Both TARCOM and GSA indicated to us that they would actively participate in the Voluntary Truck and Bus Fuel Economy Program. TARCOM also said it would include fuel efficient engines, and 6- and 9-speed transmissions in the proposed governmentwide specifications for heavy duty vehicles.

Since there appear to be some differences between OMB and the procurement agencies as to the need for OMB authority, we believe that OMB should provide the necessary direction to resolve any questions on the use of fuel-efficient components and help provide the leadership in the Federal Government's efforts to conserve energy through its procurement process. This role is consistent with the stated policy of the Congress and the President as discussed above.

(003472)



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